Space-Age Training Program Technologies Offered to Commercial Industries

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Teledyne Brown Engineering, in cooperation with NASA, has developed a new tool to train astronauts, ground controllers, and principal investigators on scientific experiment operations for SpaceLab missions. "Interactive Multimedia Training" is finding applications with private industries seeking to train new employees and certify the job skills of experienced workers.

At present, SpaceLab training programs use manuals, briefings, high-fidelity simulators, and flight simulations. Trainees must travel to a training site where they learn to operate in-flight experiments aboard the space shuttle. Personnel who will remain on the ground in support of those in space are also trained in this manner. A typical training program requires an average of 2 years to prepare and conduct, and commands the participation of instructors and trainees located around the world.

In view of accelerated launch schedules, increasing demands, reduced training time, budget reductions, and the rising costs of traveling to training sites, NASA and Teledyne Brown Engineering have been seeking a better way to train space operations teams. Interactive Multimedia Training provides one such solution by merging the best communication techniques and technologies in one powerful, complete package. It reaches each trainee with the same information every time and allows trainees to set the pace at which the information is presented. Students use a computer mouse or enter appropriate keyboard commands as they proceed through the training program. Students may repeat various portions of the training program as many times as necessary to gain a complete understanding. When the course is completed, students are provided with immediate feedback to evaluate their performance.

Interactive Multimedia Training stimulates the senses with color, motion, sound, and touch to increase comprehension and maximize the effectiveness of available learning time. The course content is easily customized and updated on compact disk/read-only memory disks. The updated materials can then be sent to trainees who may proceed through the new material at their convenience.

Teledyne Brown developed its pathfinder course to train NASA personnel who were involved in operating the crystal-growth furnace to be flown on the second United States Microgravity Laboratory SpaceLab mission. The new approach trained operations personnel in how to operate the furnace's hardware/software systems and science and operations procedures. It also reviewed "lessons learned" from previous missions. This effort has been a successful "proof of concept" in establishing the value of Interactive Multimedia Training as an effective, efficient training tool.

After Teledyne Brown developed this new training concept, the firm became aware of a need existing in the commercial market for quality training on specialized systems at a reasonable price. The company combined its expertise in training with its ability to package interactive multimedia courses, enabling it to offer industry a method of qualifying and certifying new employees and recertifying experienced workers.

A major Huntsville manufacturer requested that Teledyne Brown develop an interactive training program for its own employees. Training courses were developed to teach newly hired workers the proper method of performing their jobs, emphasizing the proper use of safety equipment, and explaining how a worker's job is integrated into the overall production of the product and operation of the industry. In addition, the manufacturer has been provided with a means of testing new workers to ensure they are qualified to operate expensive equipment and are aware of proper safety precautions to prevent injury to themselves and damage to equipment. Employees are also shown various types of problems encountered in manufacturing the product and the proper way of correcting them.

The finished program benefits the company's employees by providing them with a means of improving their skills, thereby enhancing their opportunities for promotion and higher wages. Additionally, managers have found the program offers a new way of upgrading veteran employees' skills as new equipment is introduced or improved manufacturing methods are introduced.

Local employers who have implemented the training program are finding that fully trained and certified

workers ensure a maximum flow of quality products without bottlenecks. Better quality controls reduce the number of rejected parts. Both factors contribute to increased production and lower costs.

Sponsor: Office of Commercial Development and Technology Transfer

Industry Involvement: Teledyne Brown Engineering